

City of

# SAND SPRINGS

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## COMPASS INDUSTRIES SUPERFUND SITE

Tulsa County, Oklahoma

**2012**

## ANNUAL OPERATION AND MAINTENANCE REPORT

Submitted by

Public Works  
City of Sand Springs  
Sand Springs, Oklahoma

December 31, 2012

9351697



[illegible]

Map created by Jacob Bankhead  
on 8/9/2010

We make every effort to provide and maintain accurate, complete, usable, and timely information. However, some data and information on this map may be preliminary or out of date and is provided with the understanding that it is not guaranteed to be correct or complete. Conclusions drawn from, or actions undertaken on the basis of, such data and information are the sole responsibility of the user.

Fourth Five-year Review Report  
Compass Industries Superfund Site

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## INTRODUCTION

The Compass Industries Site is an abandoned landfill located in a former limestone quarry west of Tulsa, Oklahoma in Tulsa County. Physically, the site is situated on a bluff approximately one-quarter mile south and 200 feet above the Arkansas River.<sup>1</sup>

During the period of 1972 to 1976, the site was permitted and operated as a municipal solid waste landfill. The entire Compass Industries Site consists of approximately 125 acres, of which approximately 46 acres are located in the northeastern portion of the site and is the primary area of concern.<sup>2</sup>

During the 1970's, several fires were reported at the landfill. The most recent fires burned out in 1984. Local citizen complaints of odors prompted air monitoring which revealed the presence of some organics which have been considered non-hazardous.<sup>3</sup>

In July 1987, the Environmental Protection Agency (EPA) and Oklahoma State Department of Health (OSDH) entered into a Cooperative Agreement to undertake a Remedial Investigation (RI) and Feasibility Study (FS) at the site. EPA issued a Record of Decision in September 1987, referred to as the "ROD", in which the EPA selected a remedy for the area and discussed the reason for its decision. Monitoring activities performed under contract by Stelle & Associates, were included in the ROD.

The Second Five-Year Review Final Report, completed at the end of 2001, noted that plans were underway in 2001 for Operations and Maintenance activities to move from Stelle & Associates Inc. to the City of Sand Springs. Operations and Maintenance activities performed in 2001 were performed under contract with Stelle & Associates Inc. in accordance with the EPA approved O&M plan supplied by Sunoco and Texaco.

The Third Five-Year Review Final Report, completed in April 2006 detailed annual Operations and Maintenance procedures for the City of Sand Springs. The report also noted recommendations and follow-up to insure long-term protectiveness of the site including removal of encroaching trees and brush on the cap edge, erosion monitoring and maintenance as required including continued inspection of the vegetative cover and the cap and liner for evidence of damage from brush and burrowing animals. An institutional control (deed notice) was issued in September 2006 to restrict the uses of the land and minimize potential exposure to contaminants.

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<sup>1</sup> Bechtel Environmental, Inc., "Operation & Maintenance Plan", Sec1.1, p. 1

<sup>2</sup> Ibid., p. 1-2

<sup>3</sup> Ibid., p. 2

The Fourth Five-Year Review Final Report, completed in April 2011, indicated that the remedial actions set forth in the decision documents for the site continue to be implemented as intended; and identified recommendations and follow-up actions for the site. In summary, those identified include updating the Post Closure Operation and Maintenance Plan, discontinuation of surface water sampling activities, continuation of monitoring of water seep locations and sampling (if water present) prior to each five-year review, semi-annual inspections by the City of Sand Springs of the cap cover and liner system, and completion of site settlement surveys prior to each five-year review.

## **OPERATION AND MAINTENANCE PLAN**

**Seep Sampling** – Every five years, if water is present. Data and description to be included in the five-year review. (Fourth five-year review report – April 2011).

Last Sampling – 2010 inspection of sites and monitoring (analysis not possible);  
Previous - 1995 with analysis, 2000 and 2005 monitoring (analysis not possible).

Five sampling sites and two background sites identified in the 2000 Annual Monitoring Report submitted by Stelle & Associates Inc. and shown on attachment (Figure 1) remain the primary area of focus for scheduled sampling. In addition, the sample collection apparatus and methods described in the referenced 2000 Stelle & Associates report will be utilized for sample recording.

The seep locations defined were monitored monthly in 2000, and again for a period of time in 2005 with no resulting presence of water for collection and analysis. The defined seep sampling locations were monitored again in 2010 for the Fourth Five-Year Review, and there was no moisture present at any of sampling points.

(Stelle & Associates Report of May 29, 2010 – Figure 2.)

Next Scheduled Sampling – 2015

**Surface Water Sampling** – Every five years, if water is present. Data and description to be included in the five-year review. (Fourth 5-year review report – April 2011).

Last Sampling – May 21, 2010 for the Fourth Five-Year Report.

**Laboratory results for the 2010 sampling** showed no chemicals present above the monitoring levels. Most parameters were below detection limits. See Stelle & Associates Report dated June 7, 2010 (Figure 5). The sampling equipment, site locations noted in attachment (Figure 1), and general methods used are described in the 2000 Annual Monitoring Report by Stelle & Associates Inc.

**Next Scheduled Sampling – The Final Fourth Five-Year Review Report recommended that Surface Water Sampling be discontinued effective April 2011.**

**Site Inspections** – Semiannually. Description to be included in the Annual O&M Report and the five-year reviews. (Fourth 5-year review report – April 2011).

Last Report – 2011 Site Inspections – Annual Report

**Year 2012 – Site Inspections** (July and December Walkovers)

Stelle and Associates, Inc. Reports of July 31, 2012 and December 5, 2012 (Attachment Figures 2 and 2A).

**Site Mowing, Brush Control, Gate and Fence Repair** – by (GMA) Gentry-McDonald-Austin Construction, Inc. - (Attachment Figure 3).

The vegetative cover is well established and remains healthy. The site is covered with native grasses except in the main drainage swale where Bermuda was planted to control erosion. The native and Bermuda grasses continue to naturally seed and mix. The vegetative cover is adequately holding the cap soil in place and no erosion sites were evident. All previously repaired erosion sites have blended into the environment. The rip-rap material supplemented to that existing at the west end of the drainage swale in 2001 is providing adequate cover of the geotextile. Woody vegetation was removed from an area along the northern slope in 2001, 2005, and 2008; **and the entire cap 46 acre perimeter in 2010, 2011, and again in 2012.**

Woody vegetation growth was monitored around the cap edges and slopes during the July and December 2012 walkovers. **Only the 46 acre cap grasses within two (2) mower widths of the perimeter were cut in the summer of 2012 because of ongoing drought conditions. The perimeter brush removal procedure of 2012 will enhance the cap liner protection and overall site maintenance.** No evidence of damage to the cap or liner system from brush or burrowing animals was discovered during the walkovers, mowing, and perimeter brush removal operations in 2012.

The drainage system appears to be working properly, and the wet areas at the west end below the cap toe commonly remain after most other areas have dried. These areas do dry after a prolonged dry spell and were mowed in 2012. The cyclic wetting and drying described in the 2001 Five-Year Review Final Report is the standard used for seasonal monitoring and identifying out of ordinary change.

The cap perimeter is secured by chain-link fence with a barbed-wire top and locked gates. There is no evidence of continued or long-term use of the site, although evidence that unauthorized persons have been on the site has been noted. The evidence includes theft of warning signs, fencing damage, and broken gates. Other vandalism or damage to the cap has not occurred.

Next Site Inspection – Summer 2013

**Settlement Survey** – Every five years. Data and description to be included in the five-year review. (Fourth 5-year review report – April 2011).

Last Survey – July 28, 2010

The Cap Settlement Marker Elevation Survey Report dated July 29, 2010 (for the Fourth Five-Year Review Report) by Breisch & Associates (Figure 4) indicates only slight change from previous surveys.

	Markers					
Year	1	2	3	4	5	6
1994	860.73	847.47	846.09	832.58	N. A.	823.34
2001	860.75	847.42	846.06	832.55	822.25	823.34
2006	860.76	847.43	845.99	832.58	822.47	823.39
<b>2010</b>	<b>860.69</b>	<b>847.46</b>	<b>845.91</b>	<b>832.61</b>	<b>822.29</b>	<b>823.08</b>

The method, control positions, and marker positions described in the Breisch & Associates letter of February 28, 2006 will be utilized in the future.

Next Survey – 2015

**Site Maintenance** – As necessary, based on semiannual Site Inspections and Five-Year Reviews. Description to be included in the Annual O&M Report and the five-year reviews. (Fourth 5-year review report – April 2011).

In 2012 GMA Construction Inc. received Sand Springs P.O. 130792 and restored the integrity of the damaged chain-link fence, gates, warning signs, mowed the entire cap fence line and perimeter edge, and provided equipment and removed all woody vegetation around the entire 46 acre cap perimeter to stop any possible encroachment onto the cap. (See Figure 3).

Stelle and Associates, Inc. also perform and record walkover inspections relative to site maintenance requirements during their semiannual vent sampling activities. (Figures 2 and 2A).

Next Maintenance – As required



**Vent Sampling** – Semiannually. Data and description to be included in the Annual O&M Report and the five-year reviews. (Fourth 5-year review report – April 2011).

Last Sampling – July and December 2011

**Current Sampling – July and December 2012**

The vent emissions were sampled monthly through 2000 by Stelle & Associates Inc. with a Foxboro Organic Vapor Analyzer (OVA), equipped with a flame ionization detector. OVA readings ranged from below detection limits to 150 ppm.

Stelle & Associates, Inc provided service to locate, inspect, and record sample vent emission tests at the eleven (11) vents along the perimeter of the site cap (Figure 1A) on **July 31, 2012 and December 4, 2012**. The vents were tested utilizing a MiniRea 2000 Organic Vapor Analyzer (OVA) with Photo-Ionization Detector (PID). Prior to conducting the tests the OVA was calibrated with a 100ppm isobutylene span gas. In the July 2012 and December 2012 sampling vent emissions were checked for **Methane** using a Thermo Scientific TVA 1000 Flame-Ionization Detector (FID). The FID was calibrated for **Methane** and fitted with a carbon filter on the intake, in order for readings to be specific for **Methane** on each sampling event. An upwind background reading of the **Methane** level was noted at each vent. A TSI Velocichcek 8340 was used to measure the flow rate of the emissions from each vent on each sampling event. **The results from each meter are summarized on the tables attached to the Stelle & Associates, Inc. reports for the subject July 31, 2012 and December 4, 2012 Sampling Events. See Attachments (Figures 2 and 2A).**

Next Sampling – July and December 2013

**Institutional Controls** – Semiannually. Status to be reported in the Annual O&M Report and the five-year reviews. (Fourth 5-year review report – April 2011).

Last Report – 2011

**Current Report 2012 – see Note 1**

**Note 1:** Sand Springs took no additional action in 2005, 2006, and 2007 (see EPA letter July 1, 2005). The following is action by Sand Springs in 2004:

The second five-year final report makes reference to the EPA having had restrictions incorporated into the deeds for the sites known as the Compass Industries Superfund Site. The EPA also required that no activity occur which may damage the landfill cap.

Sand Springs retained the services of Cinnabar Service Company in 2004 to investigate land records at the Tulsa County Court House Records Office and discovered there are multiple owners, and trusts with ownership of the Compass Site land. The investigation, conducted for conveying deeds between the years 1987 to 2004, determined that no restrictions, regulations, or guidelines from the Environmental Protection Agency were outlined on any conveying deeds recorded during the seventeen years searched. Tract No. 4 adjacent to the cap does reference the superfund site.

The conclusion reached from the Cinnabar Service Company investigation was that the Compass Landfill Cap site (the area fenced and subject to this report) was not protected with the restrictions intended for incorporation into conveying property deeds recorded from 1987 to 2004.

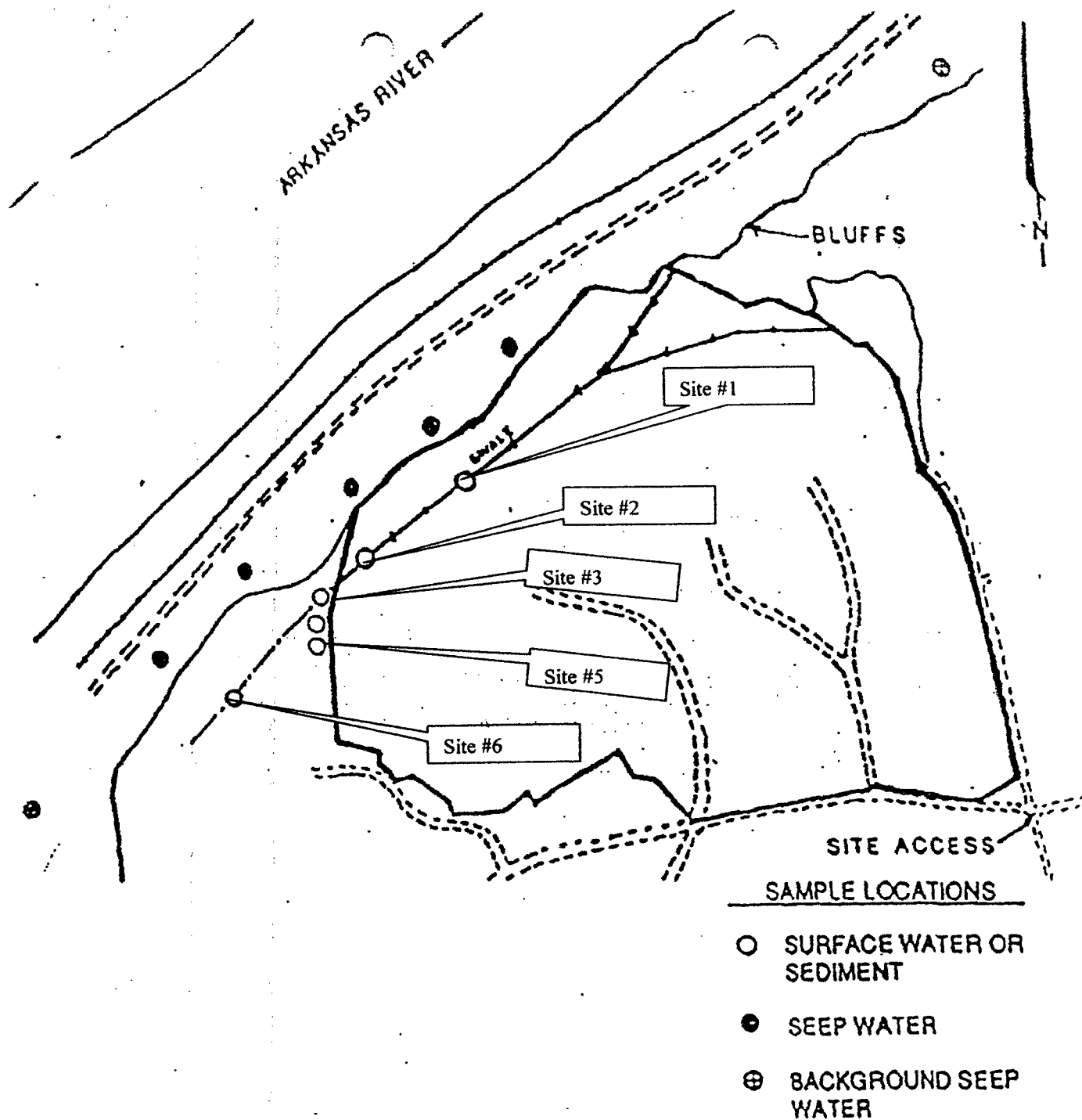
As a result of this investigation the Oklahoma Department of Environmental Quality (ODEQ), in consultation with EPA, did issue a deed notice (Notice of Remediation under CERCLA) involving the site in 2006. The deed notice is intended as an institutional control to restrict the uses of the land at the site and minimize potential exposure to contaminants.

**Bacon Royalties, LLC (formerly Cinnabar Service Company) of Tulsa Oklahoma, who conducted the investigation in 2004 on behalf of Sand Springs, was commissioned to reinvestigate the land records and deeds in 2012 for the period from their last investigation ending November 30, 2011 to November 20, 2012 and found the following: (Attachment Figure 4).**

- 1. No additional deeds of conveyance for the subject lands were filed in the period November 30, 2011 to November 20, 2012.**
- 2. A document was filed by the Oklahoma Department of Environment Quality Land Protection Division, filed of record on September 29, 2006, as defined in the Bacon Royalties, LLC Summary Letter of November 20, 2012 protecting the subject lands.**

Next Report – 2013

# Compass Industries Sampling Locations

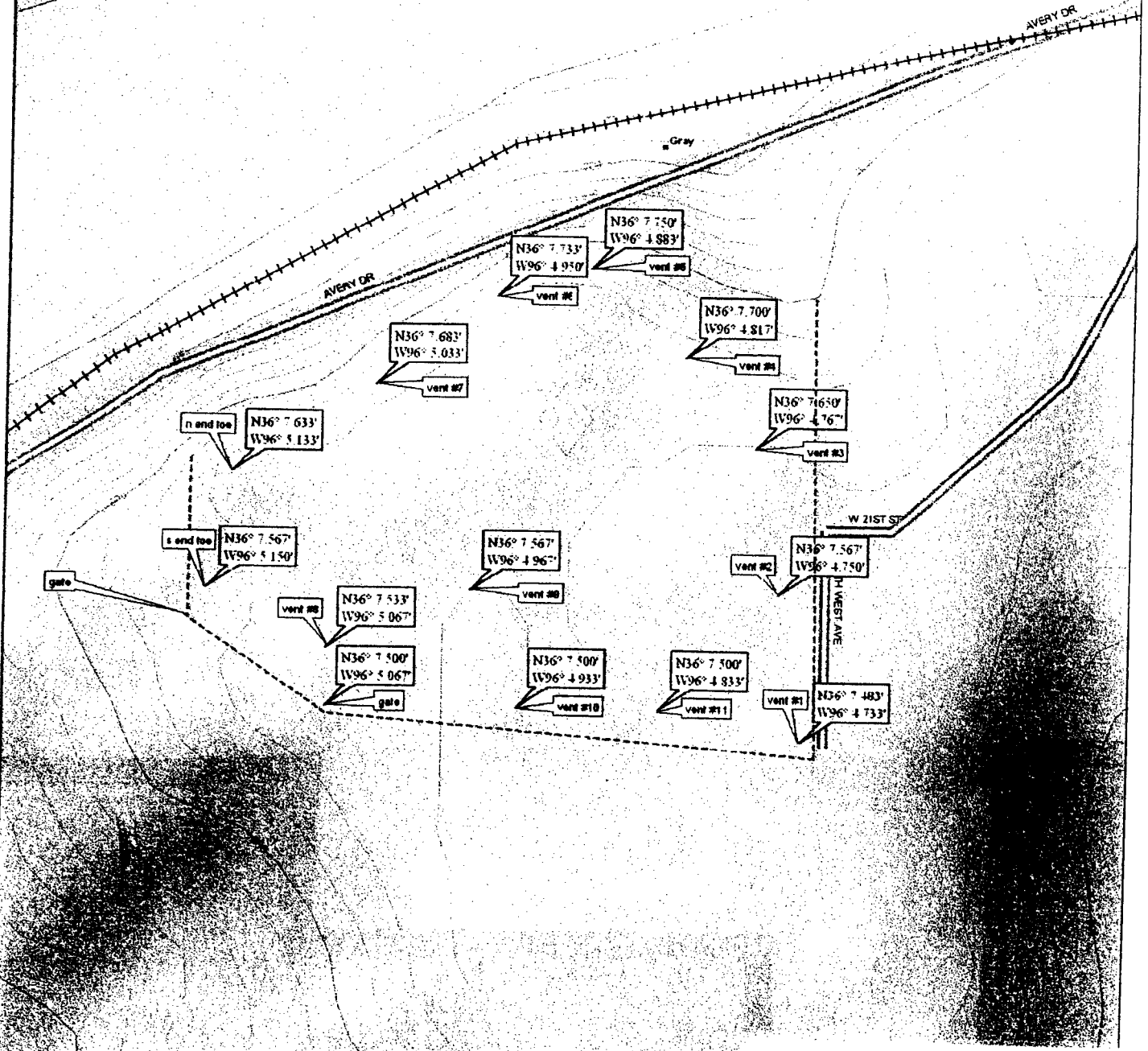


NOTE: The location of the monitoring points is approximate and will be limited to: 5 seep samples  
2 background samples

FIGURE 1  
SAMPLE PROGRAM LOCATION

ATTACHMENT 1

# Compass Industries Site Vent Locations

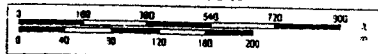


ATTACHMENT 1A



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www.delorme.com

Scale 1 : 5,400  
1" = 533 ft





# Stelle & Associates, Inc.

ENVIRONMENTAL CONSULTANTS

---

July 31, 2012

Frank Weigle  
City of Sand Springs  
216 N Lincoln  
Sand Springs, OK 74063-0338

RE: Compass Industries site vent monitoring

Dear Frank:

At your request I inspected the capped area and tested the eleven (11) vents along the perimeter of the former Compass Industries site. This work was performed July 31, 2012. The weather at the time of the monitoring was sunny, 92 degrees, with a very light South wind.

The vents were tested utilizing a Mini Rea 2000 Organic Vapor Analyzer (OVA) with a Photo-Ionization Detector (PID). Prior to testing the vents the OVA was calibrated with a 100ppm isobutylene span gas. Vent emissions were checked for Methane using a Thermo Scientific TVA 1000 Flame-Ionization Detector (FID). The FID was calibrated for Methane and fitted with a carbon filter on the intake, in order for readings to be specific for Methane. An upwind, background reading of Methane levels were noted at each vent. A TSI Velocichk 8340 was used to measure the flow rate of the emissions from each vent. The results from each meter are summarized on the following table.

The vents were in good condition with all screens intact. The inspection of the cap revealed no problems. The perimeter fence was in good condition and the main gate was intact and secured. No other problems were observed.

Vents number one (1), two (2) and three(3) had positive readings for VOC's and Methane. Vent number eight (8) had a positive reading for Methane but no VOC,s

If you have any questions or need further assistance please give me a call.

Sincerely,

*J. Scott Stelle*

J. Scott Stelle R.E.M

ATTACHMENT 2

**COMPASS INDUSTRIES - VENT SAMPLING DATA July 31, 2012**

<b>VENT NUMBER</b>	<b>FID READING (PPM)</b>	<b>FID BACKGROUND (PPM)</b>	<b>PID (PPM)</b>	<b>VELOCITY FT / MIN</b>
1	1127	0	12.4	9
2	1880	0	7.7	27
3	673	35	2.1	21
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	1108	0	0	13
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0



# Stelle & Associates, Inc.

ENVIRONMENTAL CONSULTANTS

December 5, 2012

Frank Weigle  
City of Sand Springs  
109 N. Garfield Ave  
Sand Springs, OK 74063-0338

RE: Compass Industries site vent monitoring

Dear Frank:

At your request I inspected the capped area and tested the eleven (11) vents along the perimeter of the former Compass Industries site. This work was performed December 4 2012. The weather at the time of the monitoring was sunny, 58 degrees.

The vents were tested utilizing a Mini Rea 2000 Organic Vapor Analyzer (OVA) with a Photo-Ionization Detector (PID). Prior to testing the vents the OVA was calibrated with a 100ppm isobutylene span gas. Vent emissions were checked for Methane using a Thermo Scientific TVA 1000 Flame-Ionization Detector (FID). The FID was calibrated for Methane and fitted with a carbon filter on the intake, in order for readings to be specific for Methane. An upwind, background reading of Methane levels were noted at each vent. A TSI Velocichcek 8340 was used to measure the flow rate of the emissions from each vent. The results from each meter are summarized on the following table.

The vents were in good condition with all screens intact. The inspection of the cap revealed no problems. The perimeter fence will need some minor repairs in two areas. The main gate was intact and secured. No other problems were observed.

None of the vents had positive readings for VOC's. Methane was noted on vent number seven (7), only.

If you have any questions or need further assistance please give me a call.

Sincerely,

*J. Scott Stelle*

**ATTACHMENT 2A**

J. Scott Stelle R.E.M

P.O. BOX 470071 ♦ TULSA, OKLAHOMA 74147-0071 ♦ (918) 425-4277 ☎

♦ FAX (918) 622-2206 ♦

**COMPASS INDUSTRIES - VENT SAMPLING DATA December 31, 2012**

<b>VENT NUMBER</b>	<b>FID READING (PPM)</b>	<b>FID BACKGROUND (PPM)</b>	<b>PID (PPM)</b>	<b>VELOCITY FT / MIN</b>
1	0	0.6	0	117
2	0	0	0	31
3	0	0	0	39
4	0	0.9	0	9
5	0	0.2	0	21
6	0	0.6	0	3
7	259.3	0.9	0	6
8	0	0.9	0	82
9	0	0.4	0	37
10	0	0.6	0	66
11	0.4	1.1	0	41





# PURCHASE ORDER

CITY OF SAND SPRINGS / MUNICIPAL AUTHORITY  
ACCOUNTS PAYABLE  
P.O. BOX 338  
SAND SPRINGS, OKLAHOMA 74063

PURCHASE ORDER NO.  
130792

PAGE: 1

DATE: 11/15/12

V  
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R

2555  
GENTRY MCDONALD AUSTIN CONSTRU  
PO BOX 415  
SAND SPRINGS, OK 74063

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CITY OF SAND SPRINGS  
109 N GARFIELD AVE  
SAND SPRGS, OK 74063

PROJECT NO.		CONTRACT NO.		REQUISITION NO. 22638	
REQUISITIONED BY FRANK WEIGLE		REQUISITIONED DATE 11/14/12		ACCOUNT NO. 740-9320-434.30-31	
				F.O.B.	
QUANTITY	UOM	DESCRIPTION		UNIT COST	EXTENDED COST
1.00	EA	MOW FENCE LINE AROUND THE 46 ACRE CAP AND WEST END Mow tall grass, weeds, small brush, and remove any brush to large to mow by hand along the entire perimeter of the 46 acre cap site. Mow as close as machine will permit to the chain link fence, rock out crop faces and the north cap edge as directed by the Sand Springs Representative to prevent the growth of brush that could encroach into the Cap. Remove all large brush cut by hand from the site. Mow next to the chain link fence up on the raised West End. All mowing shall be two(2) machine widths wide around the entire area.		675.0000	675.00
				SUB-TOTAL	675.00
				TOTAL	675.00
ATTACHMENT 3					

I hereby certify that the amount of this encumbrance has been entered against the designated appropriation accounts and that this encumbrance is within the authorized available balance of said appropriation.

DATE

I hereby certify that the merchandise and/or services described above have been satisfactory received and that this purchase order is now a true and just debt to this City.

The above Purchase Order number must appear on all packages, shipping papers, invoices, and correspondence relating to this order.

APPROVAL

DATE

DATE

SIGNATURE

## Frank Weigle

---

To: Arlena Barnes  
: Frank Weigle  
Subject: P.O. 130792 - Additional Work

Arlena,

Please add an additional line item to the subject P.O. to cover the following additional work added:

During the work ordered on the P.O. it was discovered that the site chain link fencing enclosure had been cut and pushed down in two different locations by vandals.

Repair of the fence was added to the work being preformed.

The additional labor and 6'-0" chain link fence materials required added an additional \$305.00

With the addition of this second line item to the P.O., it will now total \$980.00

Please let me know when the revision is made and I can receive the invoice for the total work preformed.

Please call if you have any additional questions.

Thank you.

Sincerely,

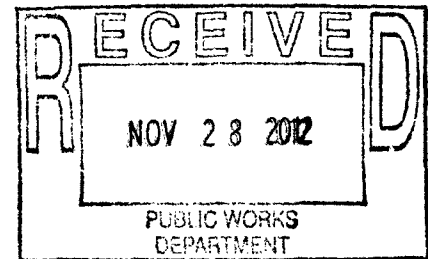
Frank Weigle

**Bacon Royalties LLC**

**P.O. Box 701181  
Tulsa, OK 74170  
918-760-5840**

November 20, 2012

Frank Weigle  
City of Sand Springs  
Public Works Department  
109 N. Garfield  
Sand Springs, OK 74063



Re: Compass Industries Superfund Site  
Sixth Review

Dear Mr. Weigle:

As you are aware, the previous five (5) searches completed by Cinnabar Services Company of the Tulsa County Courthouse Records began on the above referenced site on August 17, 2004 and covered the years of 1987 to November 30, 2011. Those reviews of the Tulsa County Clerk and Tulsa County Court Clerk's records did not reveal any additional recorded regulations or guidelines from the Environmental Protection Agency and no restrictions were outlined on any of the conveying deeds recorded during the twenty-four years searched, although the deed identified as tract 4 does make reference to the superfund site and the laws and regulations of the EPA and that a document filed by the Oklahoma Department of Environmental Quality Land Protection Division filed of record on September 29, 2006 a "Notice of Remediation or Related Action Taken Pursuant to the Federal Comprehensive Environmental Response, Compensation and Liability Act and Creation of Easement" "Deed Notice" "DEQ Case No.: 06-297 DN" identified as a tract of land being a part of Government Lots 2 and 4 Sec.17, T19N, R12E and being a part of Government Lot 6 and a part of the NE/4 of the SE/4 of Sec.13, T19N, R11E that made reference to the land use restrictions for the superfund site and the laws and regulations of the EPA.

Pursuant to your recent instructions Bacon Royalties LLC conducted the sixth review of both the Tulsa County Clerk and Tulsa County Court Clerks records for the year November 30, 2011 to November 20, 2012 and found no additional deeds of conveyance for said lands.

Please feel free to contact me with any questions you may have regarding this report or my research. Thank you for the opportunity to serve you on this matter.

Sincerely,

William S. Bacon, Manager  
Bacon Royalties LLC

**ATTACHMENT 4**